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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,344	11/24/2003	Robert Gentile	500219.02	4725

7590 02/05/2007

Kimton N. Eng, Esq.
DORSEY & WHITNEY LLP
Suite 3400
1420 Fifth Avenue
Seattle, WA 98101

EXAMINER	
SHARON, AYAL I	
ART UNIT	**PAPER NUMBER**
2123	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,344	GENTILE ET AL.	
	Examiner	Art Unit	
	Ayal I. Sharon	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *32,34-36,38-40,42-45 and 47-83* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *32,34-36,38-40,42-45 and 47-83* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Introduction

1. Claims 32, 34-36, 38-40, 42-45, and 47-83 of U.S. Application 10/722,344 are currently pending. The application was filed on 5/24/2004.
2. The application is a continuation of U.S. Application 09/083,959, filed on May 22,1998 (now U.S. Patent 6,654,714).
3. This action is non-final.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The prior art used for these rejections is as follows:

   a. Intel MultiProcessor Specification. Version 1.4. May 1997. © 1993-1997. ("**Intel**").

   b. Ghori et al., U.S. Patent 5,884,091. ("**Ghori**").

   c. Bose, S.R. et al. "Remote DOS Disk Server on a Unix Machine". IEEE Region 10 Int'l Conf. on EC3 – Energy, Computer, Communication and

Control Systems (TENCON '91). Aug. 30, 1991. Vol.3, pp.103-107. ("**Bose**").

d. Langan, D.D. and T.J. Scott. "A Methodology for Fast PC Hard Disk State Restoration." Proc. of the 1992 ACM/SIGAPP Symposium on Applied Computing. 1992. pp.1105-1110. ("**Langam**").

6. **Claims 32, 34-35, 38-40, 42-44, 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Intel in view of Bose.**
7. The following discussion of Intel applies to all claims.
8. Intel teaches a Multiprocessor (MP) System Architecture (see Fig.2-1 on p.2-1).
9. Intel also specifically teaches: "While all processors in a complaint system are functionally identical, this specification classifies them into two types: the bootstrap processor (BSP) and the application processors (AP). ... This differentiation is for convenience and is in effect only during the initialization and shutdown processes. The BSP is responsible for initializing the system and booting the operating system; APs are activated only after the system is up and running." (see pp.2-2 to 2-3).
10. Intel also specifically teaches: "The operating system must have access to some information about the multiprocessor configure-tion. The MP specification teaches two methods for passing this information to the operating system ..." (see p.4-1).
11. Intel also teaches: "The following two data structures are used: (1) The Floating Pointer Structure ... (2) The MP Configuration Table ..." (see p.4-2).

12. Intel also teaches: "The following is a list of the suggested memory spaces for the MP configuration table: (a) In the first kilobyte of Extended BIOS Data Area (EBDA), or (b) Within the last kilobyte of system base memory if the EBDA segment is undefined, or (c) At the top of system physical memory, or (d) In the BIOS read-only memory space between 0E0000h and 0FFFFFh." (see p.4-2).

13. Intel teaches that the MP Configuration Table includes processor entries (see Table 4-3 on p.4-7), and shows the format of each processor entry (see Fig.4-4 on p.4-7), as well as defining the fields of each processor entry (see Table 4-4 on p.4-8).

14. Intel also teaches that the each processor entry includes a field for "CPUID Feature Flags" (see Table 4-4 on p.4-8). Intel also teaches that one of these flags is for support for the Intel387 floating point instruction set (see Table 4-6 on p.4-9). Each processor entry also includes a field for use of Intel CPU signatures (see Table 4-4 on p.4-8, and Table 4-5 on p.4-9).

15. Intel also teaches that the BSP boots the entire system by accessing the MP configuration table in order to send "wakeup" commands to the APs. (See pp.B-1 to B-3).

16. Finally, Intel teaches: "Some MP operating systems that exist today do not support processors of different types, speeds, or capabilities. However, as processor lifetimes increase and new generations of processors arrive, the potential for dissimilarity among processors increases. The MP specification addresses this potential by providing an MP configuration table to help the

operating system configure itself. Operating system writers should factor in processor variations, such as processor type, family, model, and features, to arrive at a configuration that maximizes overall system performance. At a minimum, the MP operating system should remain operational and should support the common features of unequal processors." (See p.B-7. Emphasis added.)

17. In regards Claim 32, Intel teaches the following limitations:

> *32. (New) A method of selecting a compatible processor for addition to a multiprocessor computer, the multiprocessor computer having at least one current processor and having at least one additional location in which a new processor can be added, the method comprising:*
>
> *executing a computer program on the multiprocessor computer*

(See Intel, especially: Fig.2-1 on p.2-1; and pp.2-2 to 2-3)

> *directing each of the at least one current processor to execute at least one instruction that allows the identity of each current processor to be determined, the computer program providing identifying information indicative of the identity of each current processor;*

(See Intel, especially: pp.2-2 to 2-3; Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *obtaining processor compatibility information indicative of processors that are compatible with a plurality of processors that includes the at least one current processor;*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *executing a computer program comparing the identifying information for each current processor in the multiprocessor computer with the processor compatibility information to determine the processors that are compatible with each current processor; and*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *providing information identifying the processors that are compatible with each current processor before adding the new processor to the multiprocessor computer.*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

Intel also expressly teaches:

> "The following is a list of the suggested memory spaces for the MP configuration table: (a) In the first kilobyte of Extended BIOS Data Area (EBDA), or (b) Within the last kilobyte of system base memory if the EBDA segment is undefined, or (c) At the top of system physical memory, or (d) In the BIOS read-only memory space between 0E0000h and 0FFFFFh." (see p.4-2).

However, Intel does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *Storing processor compatibility information in a computer that is remote from the multiprocessor computer, the processor compatibility information identifying processors that are compatible with a plurality of processors that includes each current processor*
>
> *Accessing the stored processor compatibility information to provide accessed processor compatibility information*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server

> as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Intel and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Bose to obtain the claimed invention.

18. Dependent Claims 34-35 and 38-39 are rejected on the same grounds as Independent claim 32.

19. In regards Claim 40, Intel teaches the following limitations:

> *40. (New) A method of selecting a compatible processor for addition to a multiprocessor computer, the multiprocessor computer having at least one current processor and having at least one additional location in which a new processor can be added, the method comprising:*
>
> *executing a computer program on the multiprocessor computer*

(See Intel, especially: Fig.2-1 on p.2-1; and pp.2-2 to 2-3)

directing each of the at least one current processor to execute at least one instruction that allows the identity of each current processor to be determined, the computer program providing identifying information indicative of the identity of each current processor;

(See Intel, especially: pp.2-2 to 2-3; Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

providing identifying information indicative of the identity of the new processor before adding the new processor to the multiprocessor computer;

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

executing a computer program comparing the identifying information for each current processor in the multiprocessor computer with the processor compatibility information to determine the processors that are compatible with each current processor, the computer program further comparing the identifying information for the new processor with the processors determined to be compatible with each current processor; and

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

providing an indication whether or not the new processor is compatible before adding the new processor to the multiprocessor computer.

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

Intel also expressly teaches:

"The following is a list of the suggested memory spaces for the MP configuration table: (a) In the first kilobyte of Extended BIOS Data Area (EBDA), or (b) Within the last kilobyte of system base memory if the EBDA segment is undefined, or (c) At the top of system physical memory, or (d) In the BIOS read-only memory space between 0E0000h and 0FFFFFh." (see p.4-2).

However, Intel does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

Storing processor compatibility information in a computer that is remote from the multiprocessor computer, the processor compatibility information identifying processors that are compatible with a plurality of processors that includes at least one current processor;

Accessing the stored processor compatibility information to provide accessed processor compatibility information;

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Intel and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to

get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Bose to obtain the claimed invention.

20. Dependent Claims 42-44 and 47-49 are rejected on the same grounds as Independent claim 40.

21. Claims 50-56, 58-66, and 68-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Intel in view of Bose or Langan.

22. In regards Claim 50, Intel teaches the following limitations:

> *50. (New) A system for selecting a new processor for addition to a multiprocessor computer having at least one current processor, the system comprising:*
>
> *a first component on the multiprocessor computer that determines the identity of each current processor in the multiprocessor computer;*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *a third component coupled to the first and second components to accesses the processor compatibility information using the identity of each current processor in the multiprocessor computer to determine the processors that are compatible with the at least one current processor; and*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *a fourth component coupled to the third component that provides information identifying the processors that are compatible with each current processor before adding the new processor to the multiprocessor computer.*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

Intel also expressly teaches:

> "The following is a list of the suggested memory spaces for the MP configuration table: (a) In the first kilobyte of Extended BIOS Data Area (EBDA), or (b) Within the last kilobyte of system base memory if the EBDA segment is undefined, or (c) At the top of system physical memory, or (d) In the BIOS read-only memory space between 0E0000h and 0FFFFFh." (see p.4-2).

However, Intel does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *a second component remote from the multiprocessor computer that stores processor compatibility information indicative of processors that are compatible with a plurality of processors that includes each current processor;*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Intel and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Bose to obtain the claimed invention. 50-56 and 58-59.

Alternatively, Langan teaches:

> A snapshot is a description of the hard drive. The snapshot-disk is a bootable floppy disk used to hold the pristine state snapshot and other needed files (e.g., *autoexec.bat,* copies of the often-modified-files, and required utility programs). The snapshot-solution is based on using the snapshot-disk to boot the system. It then uses the pristine state snapshot, along with some utility programs, to restore the hard disk to a state equivalent to the pristine state. (See Langan, p.1106, left column, paragraph 4).

Intel and Langan are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Langan.

The suggestion/motivation for combining the references would have been that "[i]n some environments, such as PC microcomputer labs, it is desirable to create a directory structure and load a particular collection of programs onto one

or more systems, creating the pristine state on those machines, and then maintain those systems by periodically restoring the pristine state." (See Langan, p.1105, left column, "Introduction", first paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Langan to obtain the claimed invention.

23. Dependent Claims 51-56 and 58-59 are rejected on the same grounds as Independent claim 50.

24. In regards Claim 60, Intel teaches the following limitations:

> *60. (New) A system for selecting a new processor for addition to a multiprocessor computer containing at least one current processor, the system comprising:*
>
> *a first component on the multiprocessor computer that determines the identity of each current processor in the multiprocessor computer;*

(See Intel, especially: pp.2-2 to 2-3; Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *a second component allowing identifying information to be provided that identifies the new processor before adding the new processor to the multiprocessor computer;*

(See Intel, especially: pp.2-2 to 2-3; Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *a fourth component coupled to the first, second and third components to compare the identifying information for the new processor with the compatibility information to, determine processors that are compatible with each current processor; and*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *a fifth component that provides an indication whether or not the new processor is compatible before adding the new processor to the multiprocessor computer.*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

However, Intel does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *a third component remote from the multiprocessor computer that stores processor compatibility information indicative of processors that are compatible with a plurality of processors that includes each current processor;*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Intel and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Bose to obtain the claimed invention. 50-56 and 58-59.

Alternatively, Langan teaches:

> A snapshot is a description of the hard drive. The snapshot-disk is a bootable floppy disk used to hold the pristine state snapshot and other needed files (e.g., *autoexec.bat,* copies of the often-modified-files, and required utility programs). The snapshot-solution is based on using the snapshot-disk to boot the system. It then uses the pristine state snapshot, along with some utility programs, to restore the hard disk to a state equivalent to the pristine state. (See Langan, p.1106, left column, paragraph 4).

Intel and Langan are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Langan.

The suggestion/motivation for combining the references would have been that "[i]n some environments, such as PC microcomputer labs, it is desirable to create a directory structure and load a particular collection of programs onto one or more systems, creating the pristine state on those machines, and then maintain those systems by periodically restoring the pristine state." (See Langan, p.1105, left column, "Introduction", first paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Langan to obtain the claimed invention.

25. Dependent Claims 61-66 and 68-69 are rejected on the same grounds as Independent Claim 60.

26. In regards Claim 70, Intel teaches the following limitations:

> *70. (New) A computer-readable medium containing instructions for causing a computer system to use processor compatibility information to select a new processor for addition to a multiprocessor computer containing at least one current processor, by:*
>
> *executing a computer program on the multiprocessor computer*

(See Intel, especially: pp.2-2 to 2-3; Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *directing each of the at least one current processor to execute at least one instruction that allows the identity of each current processor to be determined, the computer program providing identifying information indicative of the identity of each current processor;*

(See Intel, especially: pp.2-2 to 2-3; Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *executing a computer program comparing the identifying information for each current processor in the multiprocessor computer with the processor compatibility information to determine the processors that are compatible with each current processor; and*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *providing information identifying the processors that are compatible with each current processor before adding the new processor to the multiprocessor computer.*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

However, Intel does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *obtaining processor compatibility information from a location that is remote from the multiprocessor computer indicative of processors that are compatible with a plurality of processors that includes the at least one current processor;*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Intel and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to

get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Bose to obtain the claimed invention. 50-56 and 58-59.

Alternatively, Langan teaches:

> A snapshot is a description of the hard drive. The snapshot-disk is a bootable floppy disk used to hold the pristine state snapshot and other needed files (e.g., *autoexec.bat,* copies of the often-modified-files, and required utility programs). The snapshot-solution is based on using the snapshot-disk to boot the system. It then uses the pristine state snapshot, along with some utility programs, to restore the hard disk to a state equivalent to the pristine state. (See Langan, p.1106, left column, paragraph 4).

Intel and Langan are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Langan.

The suggestion/motivation for combining the references would have been that "[i]n some environments, such as PC microcomputer labs, it is desirable to create a directory structure and load a particular collection of programs onto one or more systems, creating the pristine state on those machines, and then maintain those systems by periodically restoring the pristine state." (See Langan, p.1105, left column, "Introduction", first paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Langan to obtain the claimed invention.

27. Dependent Claims 71-75 are rejected on the same grounds as Independent Claim 70.

28. In regards Claim 76, Intel teaches the following limitations:

> *76. (New) A computer-readable medium containing instructions for causing a computer system to use processor compatibility information to select a new processor for addition to a multiprocessor computer containing at least one current processor, by:*
>
> *executing a computer program on the multiprocessor computer*

(See Intel, especially: pp.2-2 to 2-3; Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *directing each of the at least one current processor to execute at least one instruction that allows the identity of each current processor to be determined, the computer program providing identifying information indicative of the identity of each current processor;*

(See Intel, especially: pp.2-2 to 2-3; Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *providing identifying information indicative of the identity of the new processor before adding the new processor to the multiprocessor computer;*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *executing a computer program comparing the identifying information for each current processor in the multiprocessor computer with the processor compatibility information to determine the processors that are compatible with each current processor, the computer program further comparing the identifying information for the new processor with the processors determined to be compatible with each current processor; and*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

> *providing an indication whether or not the new processor is compatible before adding the new processor to the multiprocessor computer.*

(See Intel, especially: p.B-7; and Table 4-4 on p.4-8, and Table 4-5 on p.4-9)

However, Intel does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *obtaining processor compatibility information from a location remote from the multiprocessor computer indicative of processors that are compatible with a plurality of processors that includes the at least one current processor;*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Intel and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Bose to obtain the claimed invention. 50-56 and 58-59.

Alternatively, Langan teaches:

> A snapshot is a description of the hard drive. The snapshot-disk is a bootable floppy disk used to hold the pristine state snapshot and other needed files (e.g., *autoexec.bat,* copies of the often-modified-files, and required utility programs). The snapshot-solution is based on using the snapshot-disk to boot the system. It then uses the pristine state snapshot, along with some utility programs, to restore the hard disk to a state equivalent to the pristine state. (See Langan, p.1106, left column, paragraph 4).

Intel and Langan are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Langan.

The suggestion/motivation for combining the references would have been that "[i]n some environments, such as PC microcomputer labs, it is desirable to create a directory structure and load a particular collection of programs onto one or more systems, creating the pristine state on those machines, and then maintain those systems by periodically restoring the pristine state." (See Langan, p.1105, left column, "Introduction", first paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Langan to obtain the claimed invention.

29. Dependent Claims 77-83 are rejected on the same grounds as Independent Claim 76.

30. Claims 32, 34-35, 38-40, 42-44, 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghori in view of Bose.

31. In regards Claim 32, Ghori teaches the following limitations:

> *32. (New) A method of selecting a compatible processor for addition to a multiprocessor computer, the multiprocessor computer having at least one current processor and having at least one additional location in which a new processor can be added, the method comprising:*
>
> *executing a computer program on the multiprocessor computer*

(See Ghori, especially: col.3, line 63 to col.4, line 6; and col.5, lines 14-21)

> *directing each of the at least one current processor to execute at least one instruction that allows the identity of each current processor to be determined, the computer program providing identifying information indicative of the identity of each current processor;*

(See Ghori, especially: Fig.3; and col.4, line 62 to col.5, line 12; and col.5, lines 29-54)

> *executing a computer program comparing the identifying information for each current processor in the multiprocessor computer with the processor compatibility information to determine the processors that are compatible with each current processor; and*

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a.)

> *providing information identifying the processors that are compatible with each current processor before adding the new processor to the multiprocessor computer.*

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating

system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

Ghori also expressly teaches (emphasis added):

> For example, as part of the boot-up and handshake protocol, the interprocessor communication circuitry 88a of the OEM CPU 10 may store the upgrade family information in a processor register **or at a predetermined memory location**. (see col.5, lines 30-40).

However, Ghori does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *Storing processor compatibility information in a computer that is remote from the multiprocessor computer, the processor compatibility information identifying processors that are compatible with a plurality of processors that includes each current processor*
>
> *Accessing the stored processor compatibility information to provide accessed processor compatibility information*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can

effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Ghori and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Bose to obtain the claimed invention.

32. Dependent Claims 34-35 and 38-39 are rejected on the same grounds as Independent claim 32.

33. In regards Claim 40, Ghori teaches the following limitations:

40. (New) A method of selecting a compatible processor for addition to a multiprocessor computer, the multiprocessor computer having at least one current processor and having at least one additional location in which a new processor can be added, the method comprising:

executing a computer program on the multiprocessor computer

(See Ghori, especially: col.3, line 63 to col.4, line 6; and col.5, lines 14-21)

directing each of the at least one current processor to execute at least one instruction that allows the identity of each current processor to be determined, the computer program providing identifying information indicative of the identity of each current processor;

(See Ghori, especially: Fig.3; and col.4, line 62 to col.5, line 12; and col.5, lines 29-54)

> *providing identifying information indicative of the identity of the new processor before adding the new processor to the multiprocessor computer;*

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

> *executing a computer program comparing the identifying information for each current processor in the multiprocessor computer with the processor compatibility information to determine the processors that are compatible with each current processor, the computer program further comparing the identifying information for the new processor with the processors determined to be compatible with each current processor; and*

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a.)

> *providing an indication whether or not the new processor is compatible before adding the new processor to the multiprocessor computer.*

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

Ghori also expressly teaches (emphasis added):

> For example, as part of the boot-up and handshake protocol, the interprocessor communication circuitry 88a of the OEM CPU 10 may store the upgrade family information in a processor register **or at a predetermined memory location**. (see col.5, lines 30-40).

However, Ghori does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

Storing processor compatibility information in a computer that is remote from the multiprocessor computer, the processor compatibility information identifying processors that are compatible with a plurality of processors that includes each current processor

Accessing the stored processor compatibility information to provide accessed processor compatibility information

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Ghori and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to

get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Bose to obtain the claimed invention.

34. Dependent Claims 42-44 and 47-49 are rejected on the same grounds as Independent claim 40.

35. Claims 50-56, 58-66, and 68-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghori in view of Bose or Langan.

36. In regards Claim 50, Ghori teaches the following limitations:

> *50. (New) A system for selecting a new processor for addition to a multiprocessor computer having at least one current processor, the system comprising:*
>
> *a first component on the multiprocessor computer that determines the identity of each current processor in the multiprocessor computer;*

(See Ghori, especially: col.3, line 63 to col.4, line 6;
and col.5, lines 14-54)

> *a third component coupled to the first and second components to accesses the processor compatibility information using the identity of each current processor in the multiprocessor computer to determine the processors that are compatible with the at least one current processor; and*

(See Ghori, especially: col.5, lines 29-54; and Fig.3, and associated text at col.4, lines 62-66)

> *a fourth component coupled to the third component that provides information identifying the processors that are compatible with each current processor before adding the new processor to the multiprocessor computer.*

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating

system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

Ghori also expressly teaches (emphasis added):

> For example, as part of the boot-up and handshake protocol, the interprocessor communication circuitry 88a of the OEM CPU 10 may store the upgrade family information in a processor register **or at a predetermined memory location**. (see col.5, lines 30-40).

However, Ghori does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *a second component remote from the multiprocessor computer that stores processor compatibility information indicative of processors that are compatible with a plurality of processors that includes each current processor;*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Ghori and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Bose to obtain the claimed invention. 50-56 and 58-59.

Alternatively, Langan teaches:

> A snapshot is a description of the hard drive. The snapshot-disk is a bootable floppy disk used to hold the pristine state snapshot and other needed files (e.g., *autoexec.bat,* copies of the often-modified-files, and required utility programs). The snapshot-solution is based on using the snapshot-disk to boot the system. It then uses the pristine state snapshot, along with some utility programs, to restore the hard disk to a state equivalent to the pristine state. (See Langan, p.1106, left column, paragraph 4).

Ghori and Langan are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Langan.

The suggestion/motivation for combining the references would have been that "[i]n some environments, such as PC microcomputer labs, it is desirable to create a directory structure and load a particular collection of programs onto one or more systems, creating the pristine state on those machines, and then maintain those systems by periodically restoring the pristine state." (See Langan, p.1105, left column, "Introduction", first paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Langan to obtain the claimed invention.

37. Dependent Claims 51-56 and 58-59 are rejected on the same grounds as Independent claim 50.

38. In regards Claim 60, Ghori teaches the following limitations:

> *60. (New) A system for selecting a new processor for addition to a multiprocessor computer containing at least one current processor, the system comprising:*
>
> *a first component on the multiprocessor computer that determines the identity of each current processor in the multiprocessor computer;*

(See Ghori, especially: col.3, line 63 to col.4, line 6;
and col.5, lines 14-54)

> *a second component allowing identifying information to be provided that identities the new processor before adding the new processor to the multiprocessor computer;*

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

> *a fourth component coupled to the first, second and third components to compare the identifying information for the new processor with the*

> *compatibility information to, determine processors that are compatible with each current processor; and*

(See Ghori, especially: col.5, lines 29-54; and Fig.3, and associated text at col.4, lines 62-66)

> *a fifth component that provides an indication whether or not the new processor is compatible before adding the new processor to the multiprocessor computer.*

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

Ghori also expressly teaches (emphasis added):

> For example, as part of the boot-up and handshake protocol, the interprocessor communication circuitry 88a of the OEM CPU 10 may store the upgrade family information in a processor register **or at a predetermined memory location**. (see col.5, lines 30-40).

However, Ghori does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *a third component remote from the multiprocessor computer that stores processor compatibility information indicative of processors that are compatible with a plurality of processors that includes each current processor;*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).

> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Ghori and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Bose to obtain the claimed invention. 50-56 and 58-59.

Alternatively, Langan teaches:

> A snapshot is a description of the hard drive. The snapshot-disk is a bootable floppy disk used to hold the pristine state snapshot and other needed files (e.g., *autoexec.bat,* copies of the often-modified-files, and required utility programs). The snapshot-solution is based on using the snapshot-disk to boot the system. It then uses the pristine state snapshot, along with some utility programs, to restore the hard disk to a state equivalent to the pristine state. (See Langan, p.1106, left column, paragraph 4).

Ghori and Langan are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Langan.

The suggestion/motivation for combining the references would have been that "[i]n some environments, such as PC microcomputer labs, it is desirable to create a directory structure and load a particular collection of programs onto one or more systems, creating the pristine state on those machines, and then maintain those systems by periodically restoring the pristine state." (See Langan, p.1105, left column, "Introduction", first paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Langan to obtain the claimed invention.

39. Dependent Claims 61-66 and 68-69 are rejected on the same grounds as Independent Claim 60.

40. In regards Claim 70, Ghori teaches the following limitations:

> *70. (New) A computer-readable medium containing instructions for causing a computer system to use processor compatibility information to select a new processor for addition to a multiprocessor computer containing at least one current processor, by:*
>
> *executing a computer program on the multiprocessor computer*

(See Ghori, especially: col.3, line 63 to col.4, line 6; and col.5, lines 14-21)

> *directing each of the at least one current processor to execute at least one instruction that allows the identity of each current processor to be*

determined, the computer program providing identifying information indicative of the identity of each current processor;

(See Ghori, especially: Fig.3; and col.4, line 62 to col.5, line 12; and col.5, lines 29-54)

executing a computer program comparing the identifying information for each current processor in the multiprocessor computer with the processor compatibility information to determine the processors that are compatible with each current processor; and

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a.)

providing information identifying the processors that are compatible with each current processor before adding the new processor to the multiprocessor computer.

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

Ghori also expressly teaches (emphasis added):

For example, as part of the boot-up and handshake protocol, the interprocessor communication circuitry 88a of the OEM CPU 10 may store the upgrade family information in a processor register **or at a predetermined memory location**. (see col.5, lines 30-40).

However, Ghori does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

obtaining processor compatibility information from a location that is remote from the multiprocessor computer indicative of processors that are compatible with a plurality of processors that includes the at least one current processor;

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Ghori and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Bose to obtain the claimed invention. 50-56 and 58-59.

Alternatively, Langan teaches:

> A snapshot is a description of the hard drive. The snapshot-disk is a bootable floppy disk used to hold the pristine state snapshot and other needed files (e.g., *autoexec.bat,* copies of the often-modified-files, and required utility programs). The snapshot-solution is based on using the snapshot-disk to boot the system. It then uses the pristine state snapshot, along with some utility programs, to restore the hard disk to a state equivalent to the pristine state. (See Langan, p.1106, left column, paragraph 4).

Ghori and Langan are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Langan.

The suggestion/motivation for combining the references would have been that "[i]n some environments, such as PC microcomputer labs, it is desirable to create a directory structure and load a particular collection of programs onto one or more systems, creating the pristine state on those machines, and then maintain those systems by periodically restoring the pristine state." (See Langan, p.1105, left column, "Introduction", first paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Langan to obtain the claimed invention.

41. Dependent Claims 71-75 are rejected on the same grounds as Independent Claim 70.

42. In regards Claim 76, Ghori teaches the following limitations:

76. (New) A computer-readable medium containing instructions for causing a computer system to use processor compatibility information to select a new processor for addition to a multiprocessor computer containing at least one current processor, by:

executing a computer program on the multiprocessor computer

(See Ghori, especially: col.3, line 63 to col.4, line 6; and col.5, lines 14-21)

directing each of the at least one current processor to execute at least one instruction that allows the identity of each current processor to be determined, the computer program providing identifying information indicative of the identity of each current processor;

(See Ghori, especially: Fig.3; and col.4, line 62 to col.5, line 12; and col.5, lines 29-54)

providing identifying information indicative of the identity of the new processor before adding the new processor to the multiprocessor computer;

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

executing a computer program comparing the identifying information for each current processor in the multiprocessor computer with the processor compatibility information to determine the processors that are compatible with each current processor, the computer program further comparing the identifying information for the new processor with the processors determined to be compatible with each current processor; and

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a.)

providing an indication whether or not the new processor is compatible before adding the new processor to the multiprocessor computer.

(See Ghori, especially: col.5, lines 29-54; and Fig.2, Item 88a. Examiner notes that col.5, lines 52-55 teach that "In that situation [incompatibility], the operating system may choose to not start the upgrade processor and to continue to operate in uniprocessor mode.")

Ghori also expressly teaches (emphasis added):

> For example, as part of the boot-up and handshake protocol, the interprocessor communication circuitry 88a of the OEM CPU 10 may store the upgrade family information in a processor register **or at a predetermined memory location**. (see col.5, lines 30-40).

However, Ghori does not expressly teach storing such information in a computer that is remote from the microprocessor computer, as claimed in the following limitations:

> *obtaining processor compatibility information from a location remote from the multiprocessor computer indicative of processors that are compatible with a plurality of processors that includes the at least one current processor;*

Bose, on the other hand, teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose expressly teaches:

> Each authorized user of the server can create and use up to four dosdisks of size 360KB, 1.2MB, and 20 MB. Each disk will also have associated access rights (created by the disk's owner) as explained earlier. (See p.106, right column, 3rd paragraph).
>
> **Given a dosdisk organized into a bootsector**, File Allocation Table (FAT), root directory and a data area divided into clusters for files/subdirectories, the storage required can be augmented in the server as files / subdirectories are added. (See p.107, left column, 3rd paragraph. Emphasis added).
>
> These dosdisks are used to store large, common utility programs which may be required by the users at different PCs ... For users with single or dual floppy PCs, this quota is larger (e.g., 20 MB) so that they can effectively use the LAN-server combination as their "hard disk". (See p.107, right column, 1st paragraph).

Ghori and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Bose to obtain the claimed invention. 50-56 and 58-59.

Alternatively, Langan teaches:

> A snapshot is a description of the hard drive. The snapshot-disk is a bootable floppy disk used to hold the pristine state snapshot and other needed files (e.g., *autoexec.bat,* copies of the often-modified-files, and required utility programs). The snapshot-solution is based on using the snapshot-disk to boot the system. It then uses the pristine state snapshot, along with some utility programs, to restore the hard disk to a state equivalent to the pristine state. (See Langan, p.1106, left column, paragraph 4).

Ghori and Langan are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Ghori by storing the information remotely, as taught in Langan.

The suggestion/motivation for combining the references would have been that "[i]n some environments, such as PC microcomputer labs, it is desirable to create a directory structure and load a particular collection of programs onto one

or more systems, creating the pristine state on those machines, and then maintain those systems by periodically restoring the pristine state." (See Langan, p.1105, left column, "Introduction", first paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Ghori with Langan to obtain the claimed invention.

43. Dependent Claims 77-83 are rejected on the same grounds as Independent Claim 76.

44. **Claims 36, 45, 57, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Intel in view of Bose and further in view of Official Notice.**

45. In regards Claim 36, Intel does not expressly teach the following limitations:

> *36. (New) The method of claim 33 wherein the computer that is remote from the multiprocessor computer is connected to the multiprocessor computer system via the Internet.*

Bose teaches the use of a "remote DOS disk server" (see p.103, 1st paragraph) for storing computing information, including booting information, in a remote computer. Bose also expressly teaches that

> The present implementation of the disk server works over an ETHERNET LAN connecting the client machines (PC's) and their respective ETHERNET controller cards. The client software has been written over the UDP/IP protocols of the PC/IP package.

Intel and Bose are analogous art because they are from the same field of endeavor of operating system management.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Intel by storing the information remotely, as taught in Bose.

The suggestion/motivation for combining the references would have been that "without the use of a common server, various large utility programs tend to get duplicated in a large number of PCs thereby wasting a lot of disk space overall." (See Bose, p.107, left column, last paragraph).

Therefore, it would have been obvious to a person of ordinary skill in the art to modify Intel with Bose to obtain the claimed invention.

Bose, however, does not expressly teach the term "Internet". Official Notice is taken that "PC/IP package", which is more commonly known as the "TCP/IP protocol", is the protocol used for the internet.

Therefore, it would have been obvious to a person of ordinary skill in the art that the combination of Intel and Bose and Official Notice teach the claimed invention.

46. Claims 45, 57, and 67 are rejected on the same grounds as claim 36.

Conclusion

47. The following prior art, made of record and not relied upon, is considered pertinent to applicant's disclosure.

48. Bennett, D. "Booting Linux from EPROM." Linux Journal. 1997. Vol. 1997, Issue 33es, Article 2. (Teaches, in the overview, booting a computer from an EPROM).

49. Maple, C. and D. Vince. "A Framework for and Implementation of Intelligent Task Distribution." Proc. Int'l Conf. on Parallel Computing in Elec. Eng'g (PARELEC '02). 2002. pp.195-198. (Teaches, in Section 3, a framework for a distributed system that has clients that can boot from a floppy disk).

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a bi-week, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

USPTO
P.O. Box 1450
Alexandria, VA 22313-1450

or hand carried to:

USPTO
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
January 31, 2007

2/1/07

PAUL RODRIGUEZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100